



STARSYS MOBILE POWER CART

INSTRUCTIONS FOR USE

THIS MANUAL COVERS CARTS WITH
ELECTRICAL RATINGS OF: 12V, 19V & 24V

L01-491, Rev.A
10/2012



Metro Mobile Power Carts are for
Health Care applications only



InterMetro Industries Corporation

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Visit Our Web Site: www.metro.com



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InterMetro Customer Service: For all customer service related issues, or if you need technical assistance, please call our customer service department at:

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SAFETY INFORMATION

This section contains important safety and operating instructions for Starsys mobile power cart. Please read all instructions on the cart before putting into service.

CAUTION: User maintenance consists solely of cleaning and minor external adjustments. For safety purposes, all servicing must be performed by qualified service personnel only. For all service items, please contact InterMetro Customer Service.

CAUTION: Do not operate the Starsys cart, if it has received a severe impact or has been otherwise physically damaged. Please have a qualified service person inspect both the Starsys cart in conjunction with its power supply for any performance or safety hazard prior to putting back into service.

CAUTION: To prevent damage to any cords or connectors when disconnecting, always grasp and pull by the connector and not the cord. Do not operate the Starsys cart with damaged cords or connectors. Please replace the damaged component immediately. Contact InterMetro Customer Service for replacement parts and service.

DANGER: Starsys cart and the power supply are not for use in hazardous (classified) locations. Do not use nor recharge the power supply battery, in oxygen enriched areas; areas where flammable anesthetics are used or stored; or any other hazardous, classified location.

DANGER: The maximum design load (safe working load limit) for the Starsys cart is 300 lbs.(136 kg.).

NOTICE THE RECEIVER OF THIS PRODUCT IS RESPONSIBLE FOR FREIGHT DAMAGE CLAIMS.

- This equipment must be opened immediately for inspection.
- All visible damages must be reported to freight co. within **48 hours**, and must be noted on freight bill at time of delivery.
- Concealed damage is your responsibility - you must advise carrier of any loss or damage within **15 days** after receipt of material.
- If there is damage, retain original packaging for inspectors.

INTRODUCTION

This document gives detail description of Starsys Mobile Power Cart Operation, Maintenance and Troubleshooting.

Cart Overview and Features

Starsys Mobile Power Cart provides a complete management of power which is supplied to the cart and its accessories.

- The power supply is a rechargeable power source which is located in the bottom of the cart. The electrical cables and connectors from power supply pass through guided path inside the cart body and up to the All-in-one computer/monitor.
- Internal/external wire management protects cords from snags and damage.
- Overbridge keeps supplies and equipment readily accessible.
- Monitor rail and bracket are assembled to overbridge for mounting various All-In-One computer/monitor.
- For a greater range of movement, Articulating Arm is installed on monitor pole.
- The fuel gauge is mounted at the back top of cart, which is used to monitor the condition of the power supply batteries.

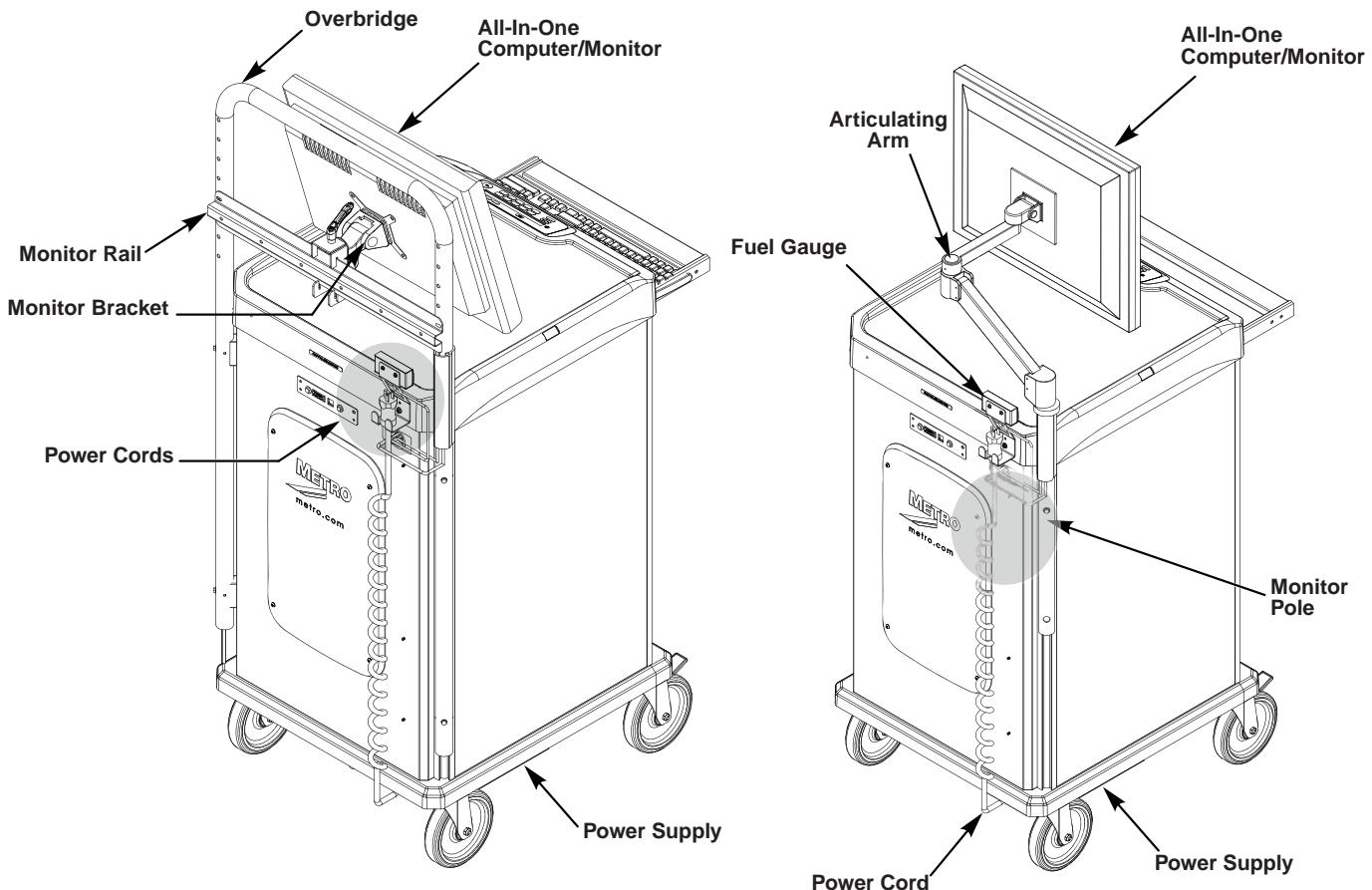


Figure 1: Features of Starsys Mobile Power Cart

GETTING STARTED WITH CART

Unpacking

The Starsys Mobile Power cart will arrive fully assembled and fully functional at the customer's site (most accessories do not ship assembled to the cart. After cutting the strapping bands, lift the top of the box over the cart. In order to avoid any injury, two (2) people should lift the cart from the padding blocks.

Power Supply Preparation

CAUTION: Before placing the Li-Nano Power Supply into service on a Starsys cart, the Li-Nano batteries must be connected. These batteries have been disconnected prior to shipment due to USDOT and IATA regulations.

Connecting the Power Supply Batteries

CAUTION: Only qualified service personnel should perform the following procedure for connecting the Power Supply Batteries.

1. The AC cable must be disconnected from the wall outlet as shown in Figure 2.

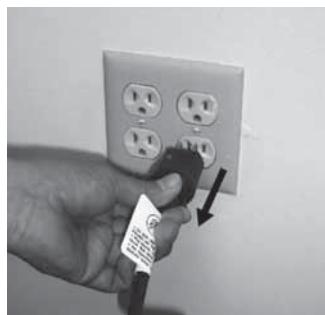


Figure 2: Disconnect AC Cable

2. The Normal Operation/OFF switch of the Power Supply must be in the Standby (down) position as shown in Figure 3.

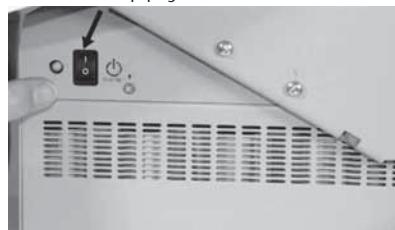


Figure 3: Power Supply Switch Down to Standby

3. Remove screw from each side of power supply that hold the battery connector access panel as shown in Figure 4.



Figure 4: Power Supply Rear View

4. Rotate the battery connector access panel down by gripping the tab on either side as shown in Figure 5.



Figure 5: Battery Connector Access Panel

- At each connector, firmly grip the cable plug between thumb and index finger. Line up the plug with the socket below it and insert it downward all the way until the latch locks completely. The latch should click into place as shown in Figure 6.

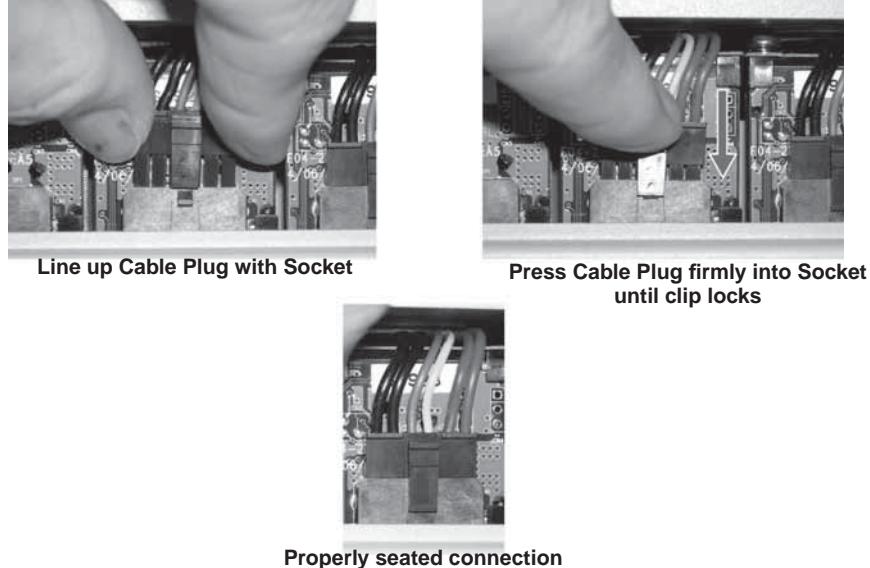


Figure 6: Cable Plug and Socket

NOTE: Instructions for disconnecting the batteries are also printed on a label inside the Battery Connector Access Panel.

- Check that all connections have been made and properly seated with latches locked. There are up to of 8 battery pack connectors in an Li-Nano power supply as shown in Figure 7.



Figure 7: Properly Seated Connections

- Rotate the Battery Connector Access Panel back up, pushing until the top is firmly seated against the case as shown in Figure 8. Re-install the screws on sides of power supply that hold the Battery Connector Access Panel.

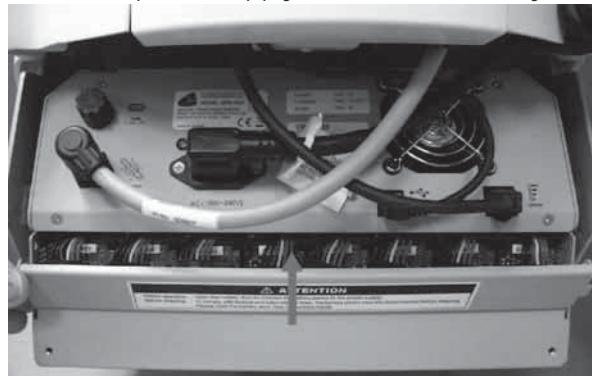


Figure 8: Battery Connector Access Panel - Close

Charging Power Supply Battery

NOTE: The cart's electrical connections to the monitor, keyboard and fuel gauge must be made as per Wiring Diagram Section in Page 15.

Before placing a Starsys Mobile Power Cart into service for the first time with the Li-Nano Power Supply, the power supply battery should be initially charged for a full **24 hours**. To charge the battery, plug the coiled AC power cord into an AC outlet and put the ON into the "ON" position which is located on the side of power supply as shown in Figure 9.

In the "ON" position, the power supply provides power to the Starsys Mobile Power Cart. If the cart is not being used for an extended period of time, the ON should be put in the OFF position. The switch position disconnects the battery from any internal or external equipment and avoids deep discharges of the battery, which can cause damage to the battery.

NOTE: After the initial charge, the charge time for a completely discharged battery is typically **4 hours**.

NOTE: If the Li-Nano Power Supply has been switched to "OFF" for more than **1 week**, connect the cart to AC to wake up the power supply before switching it to "ON."

WARNING: Risk of Electric Shock - The Power Supply employs a Lithium Iron Nano-Phosphate (Li-Nano) battery to provide mobile DC output power. Low voltage (12V, 19V, 24V) DC power is available from the Power Supply even when the AC cord is disconnected from an AC outlet. To remove DC power, put the ON/OFF Switch in the "OFF" position.

Refer to power supply Operations Manual Supplement "402546 Rev B MPS4007 Li-Nano" for more information.

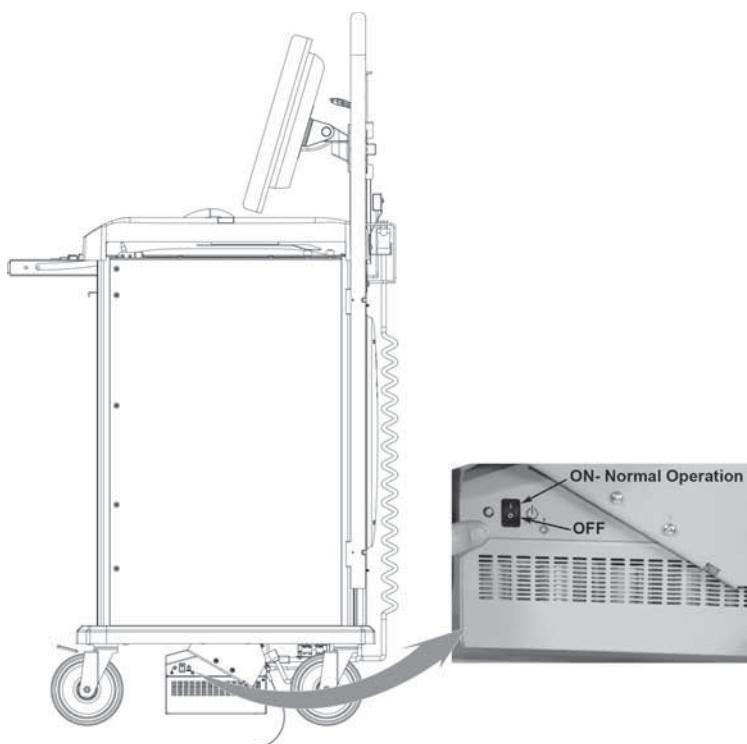


Figure 9: Location of ON/OFF Switch

OPERATION OF MOBILE POWER CART

Description of Major Components

Depending on your order, your Starsys Mobile Power Cart will be delivered in a specific configuration. The configuration may employ the following major components:

- Power Supply
- Lockalert Touchpad
- Fuel Gauge
- BatteryPro Software
- Keyboard Tray
- Monitor and its Mounting
- Power Cord

Power Supply

- The Lithium Iron Nano-Phosphate (Li-Nano) Power Supply is a rechargeable power source for the Starsys Mobile Power Carts.
- This Power Supply is a fully automatic power supply charger system with a nominal DC output voltage of 12-24Volts (V) and a battery capacity of 420 Watt-hours (Wh) (35Ah).
- When plugged into an AC outlet, it supplies power to the equipment while also charging the Li-Nano cells.
- When unplugged from the outlet, the power supply switches automatically to supply the equipment from the internal Li-Nano rechargeable battery cells.
- The power supply is designed for continuous operation and service is not interrupted by plugging in or unplugging the power supply.



Figure 10: Power Supply

Lockalert Touchpad

- Touchpad (See Figure 11) is powered by Li-Nano battery supply (separate charging for the touchpad is unnecessary). Touchpad cable passes through the inside of cart body to the PCB main control board and then to power supply.
- Refer to user manual L01-451 for programming and touchpad maintenance.

Fuel Gauge

- To monitor the charge level of the power supply battery cells when operating on mobile power, a remote fuel gauge is connected to the power supply. See Figure 12.
- Fuel gauge cable is connected to the power supply by a connector and a cable from power supply.
- The fuel gauge is located at the back of cart and just below the monitor mounting. It gives the user the current battery status at eye level.



Figure 11: Touchpad

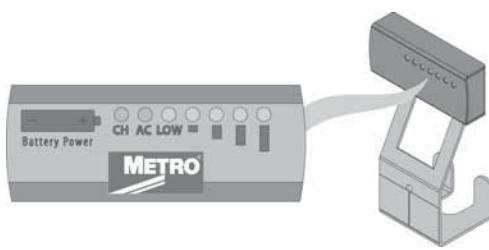


Figure 12: Fuel Gauge

Seven (7) multi color LEDs (green, amber) located on the fuel gauge display the charging status of the power supply as described below:

Fuel Gauge	Status
	Battery is fully charged, all five right LEDs are illuminated.
	Battery is discharging under normal, mobile operation. Example shown is about 50% charge remaining.
	Low battery LED flashing: plug power supply into AC immediately.
	AC indicates the power supply is plugged into the wall AC. CH indicates the battery is charging. The amber LEDs will turn on in sequence to indicate the charging status.

Keyboard

- A keyboard is situated underneath cart work surface and can be accessed by pulling out keyboard tray. Keyboard is powered from power supply through USB hub. The maximum size of keyboard the keyboard tray holds is 16".

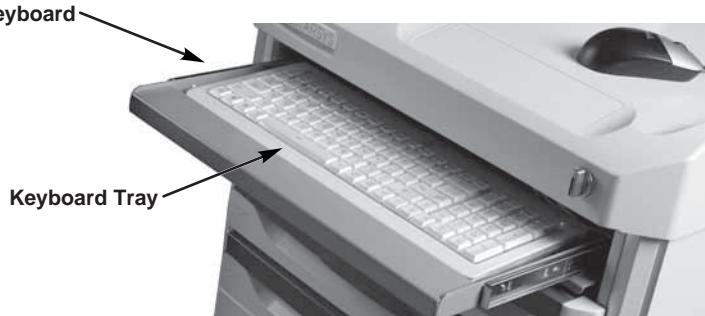


Figure 13: Keyboard

All-In-One Computer/Monitor Mounting

- Depending on the accessory ordered, your monitor can be either mounted on the overbridge or on a post mounted articulating arm.
- When mounted on the overbridge, a monitor rail and monitor bracket are used. The post mounted articulating arm is mounted at the left hand rear corner of cart.
- Maximum load that overbridge can carry is 100lbs (45.4kg).
Monitor rail can carry load upto 50lbs (22.7kg).
- Minimum and maximum range of weight the articulating arm can carry is 6lbs (2.7kg) to 26lbs (11.7kg).
- Vesa mounted plate is used to fix All-In-One computer on overbridge and articulating arm.
- Overbridge is mounted at a single height of 17" (431.8mm) from the cart work surface as shown in Figure 12.
- Monitor rail can be mounted at any two consecutive holes on overbridge which make up the seven different mounting locations for All-In-One computer/monitors. Refer to Figure 12.
- **Powering Up the Monitor:** The Starsys Cart power supply must be turned ON first before turning ON the monitor. The ON/OFF switch for monitor is located at the back of monitor and can be turned ON/OFF as required.
- **Adjusting the Display Position:** To adjust the monitor position to tilt up or down, grab the top and bottom in each hand and move to the position desired. To adjust the monitor position left or right, grab the sides with each hand and move to the position desired.
- In order to avoid damaging the display's screen, do not press the screen with your fingers. A soft, clean, lint-free cloth or a lens brush of camel hair should be used to clean the screen. Never pour or spray any type of liquid onto the display. Additional information about the operation of the display can be found in the operating manual from the original manufacturer.

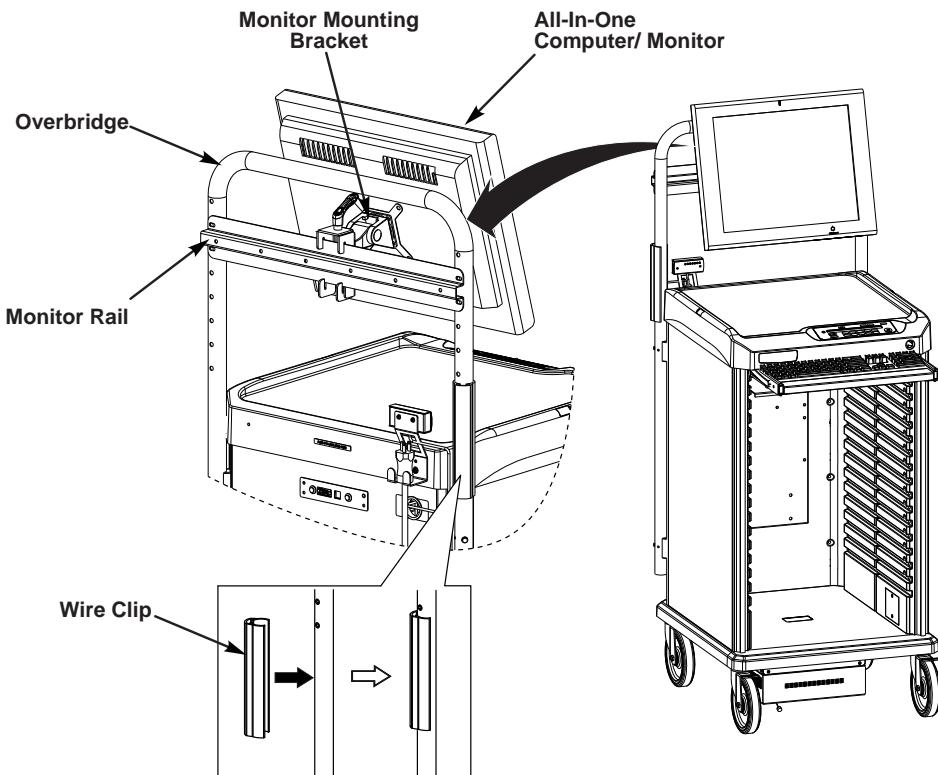


Figure 14: Monitor Mounted on Overbridge

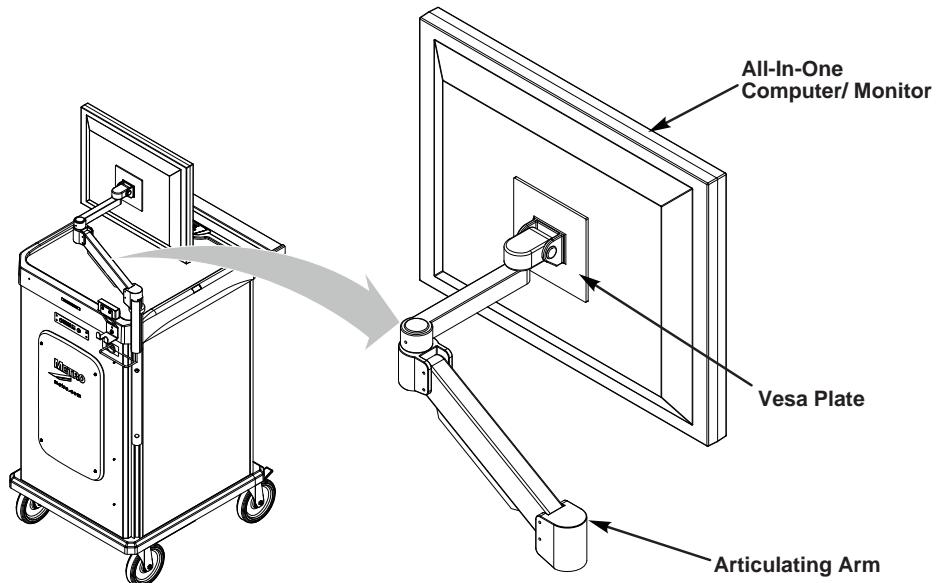


Figure 15: Monitor Mounted on Articulating Arm

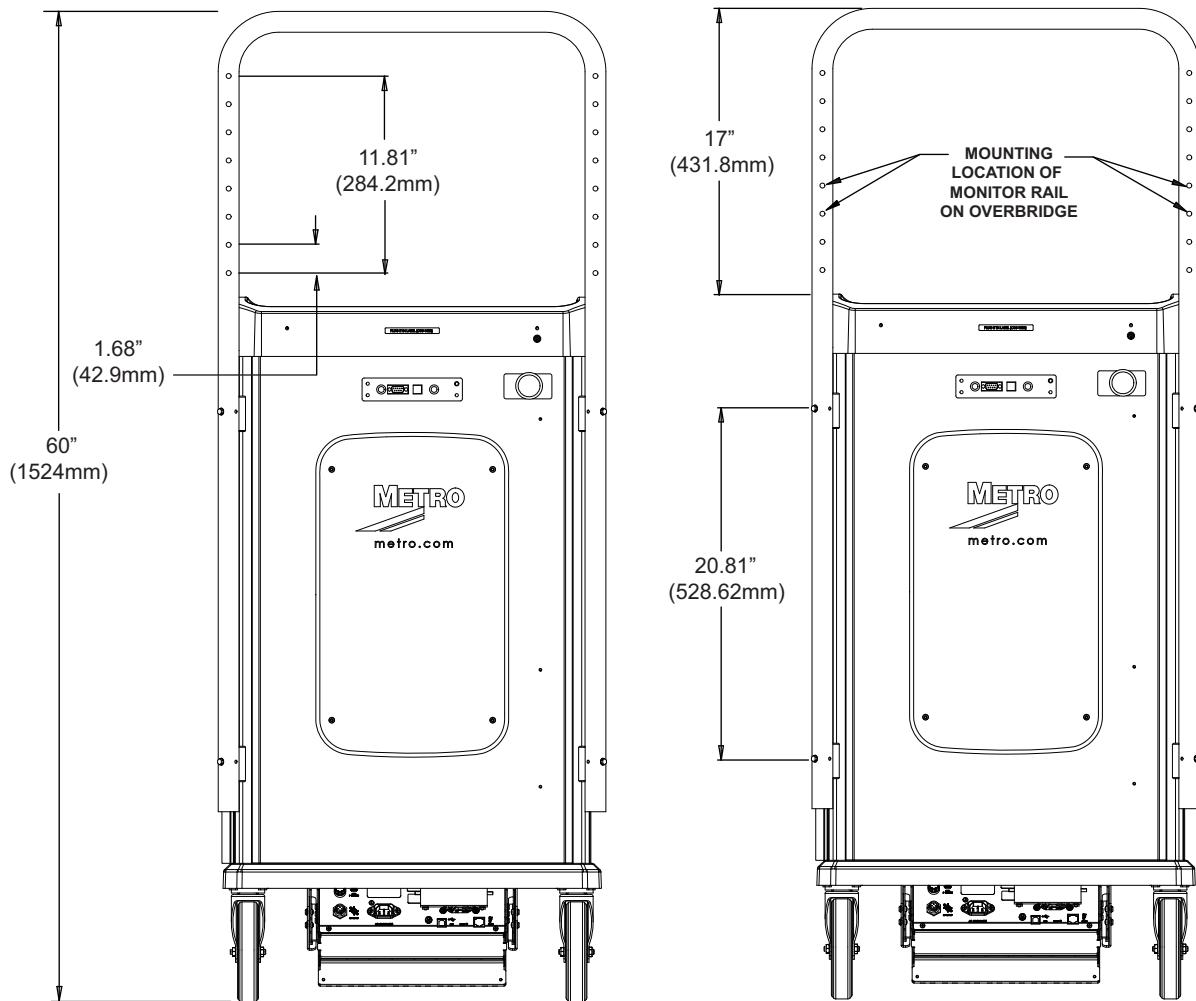
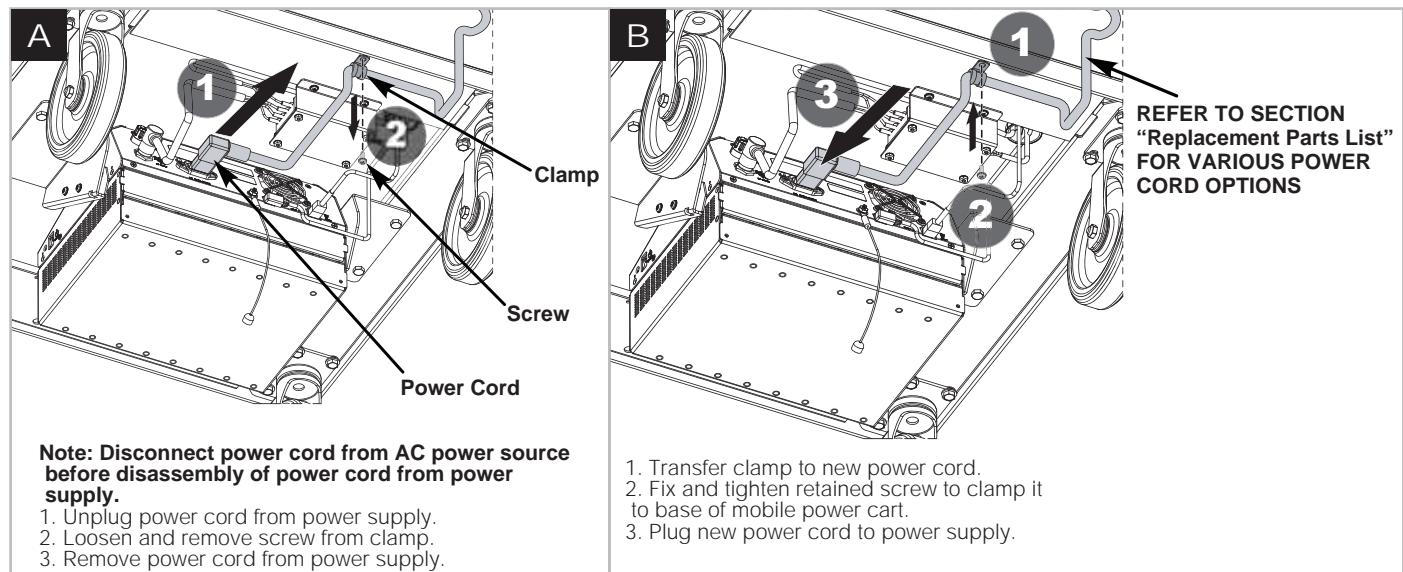


Figure 16: Overbridge and Monitor Mount Heights

Power Cord



MAINTENANCE & REPLACEMENT PARTS LISTS

Cleaning Instructions

Use 70 percent isopropyl alcohol (IPA) diluted with water for cleaning power supply. You may also use one of these products to clean the power supply:

- Cidex
- Clorox Clean-Up
- "Green soap" United States Pharmacopoeia (USP)
- Formula 409
- Sani-Cloth. Plus
- Virustat TBQ

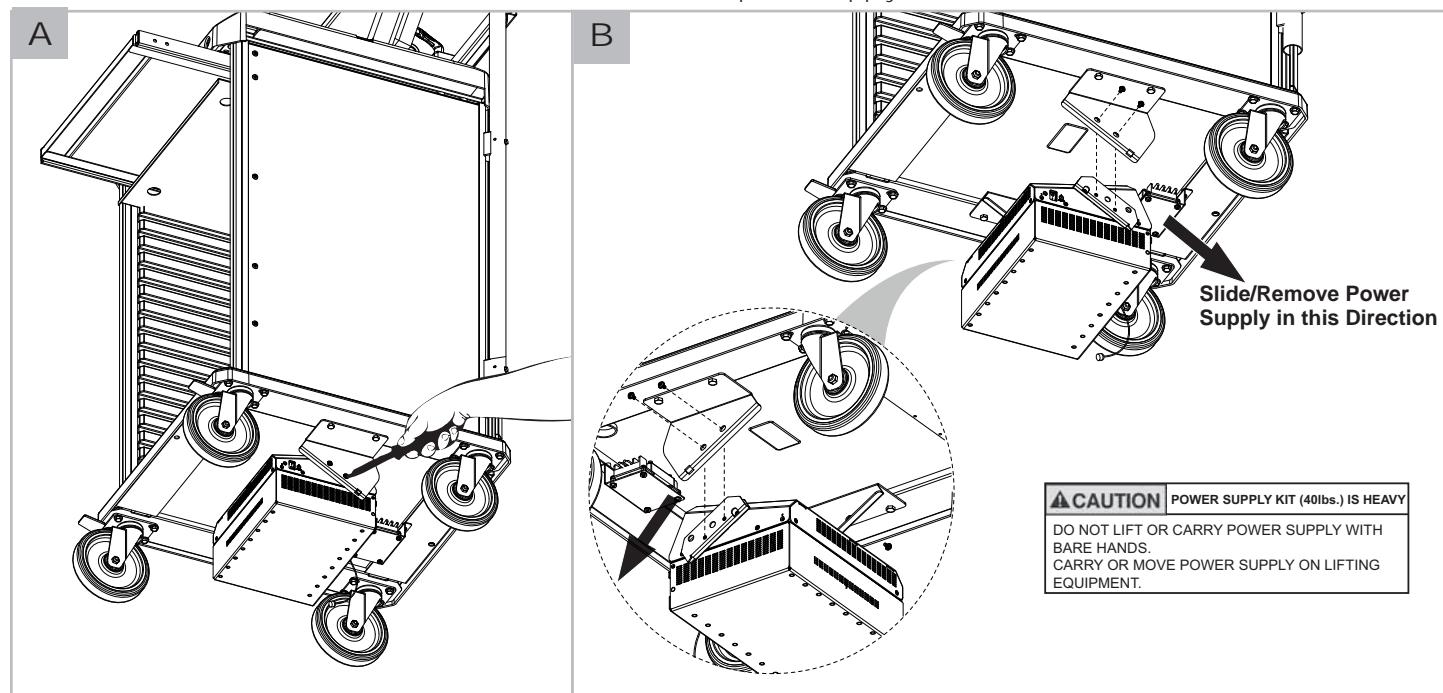
NOTE: Do not use these products on the All-in-one computer/monitor.

Ensure that power supply is off and unplugged. Apply 70 percent isopropyl alcohol to a clean nonabrasive cloth and then wipe the power supply enclosure. Cleaners applied directly to the power supply enclosure could leak inside and cause damage. Be careful not to splash solvents on power supply enclosure.

Disassembly of Power Supply from Cart

WARNING: Before disassembly power cord must be disconnected from the wall outlet.

NOTE: Disconnect all wire harness and electrical cords from power supply.



Replacement Parts List

Certain replacement parts are based on voltage or monitor/computer type.
Please confirm desired voltage and monitor/computer type when ordering parts.

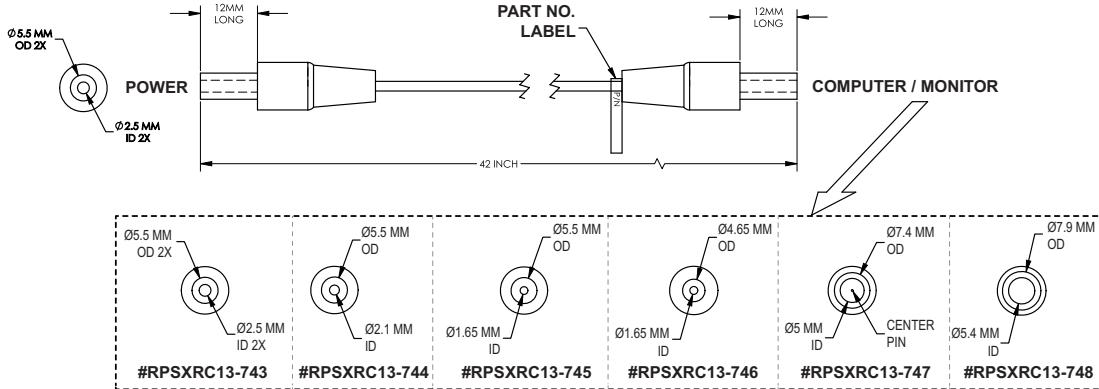
ITEM#	PART	DESCRIPTION
1	RPSXR402198	Power Supply
2*	RPSXRC13-743	DC Power Cable, 5.5mm x 2.5mm x 42" LG (1067mm)
	RPSXRC13-744	DC Power Cable, 5.5mm x 2.1mm x 42" LG (1067mm)
	RPSXRC13-745	DC Power Cable, 5.5mm x 1.65mm x 42" LG (1067mm)
	RPSXRC13-746	DC Power Cable, 4.65mm x 1.65mm x 42" LG (1067mm)
	RPSXRC13-747	DC Power Cable, 7.4mm x 5mm x 42" LG (1067mm)
	RPSXRC13-748	DC Power Cable, 7.9mm x 5.4mm x 42" LG (1067mm)
3	RPSXRC13-749	DC Power Cable x 60" LG (1524mm)
4	RPSXR400592-5	USB A to RT Angle USB B Cable x 60" LG (1524mm)
5	RPSXRC13-750	DC Power Battery Cable x 36" LG (914mm)
6	RPSXR607734-5	Ethernet Cable x 60" LG (1524mm)
7	RPSXR608855-1	Female to Female RJ45 Connector
8	RPSXR607734-2	Ethernet Cable x 36" LG (610mm)
9	RPSXRMP-6000	Fuel Gauge/Cord Holder Assembly
10**	RPSXRC13-676	US AC Coil Power Cord x 96" LG (2438mm)
	RPSXRC13-656	CTL EURO AC Coil Power Cord x 96" LG (2438mm)
	RPSXRC13-657	UK AC Coil Power Cord x 96" LG (2438mm)
	RPSXR403075-08	AU AC Coil Power Cord x 96" LG (2438mm)
	RPSXRC13-658	SWISS AC Coil Power Cord x 96" LG (2438mm)
11	RPC06-951	1 1/2 Dia. (38mm) Split Bushing
12	RPSXR92122	Ground Strap
13***	RPSXRCONVR-12V	Converter Assembly -12V Output
	RPSXRCONVR-19V	Converter Assembly -19V Output
	RPSXRCONVR-24V	Converter Assembly -24V Output
14	RPSXR401128-1	Power Conxall Cable x 10" LG (254mm)
15	RPQC02-011	6" Brake Caster
16	RPOC02-012	6" Swivel Caster
17	RPC06-864	1/2 Dia. (13mm) Black Hole Plug
18	RPSXR401293	Hub, 4 Port
19	RPSXR401495	Optical USB Mouse (Not Shown)
20	RPSXRC13-702	Slim Line Keyboard (Not Shown)
21	RPSXRC13-703	Keyboard Cover (Not Shown)

* Cable replacement part number based on the monitor/computer model (See chart below).

** Power cord replacement number based on type of plug.

*** Converter replacement part number based on output voltage.

DC Power Cable Identification



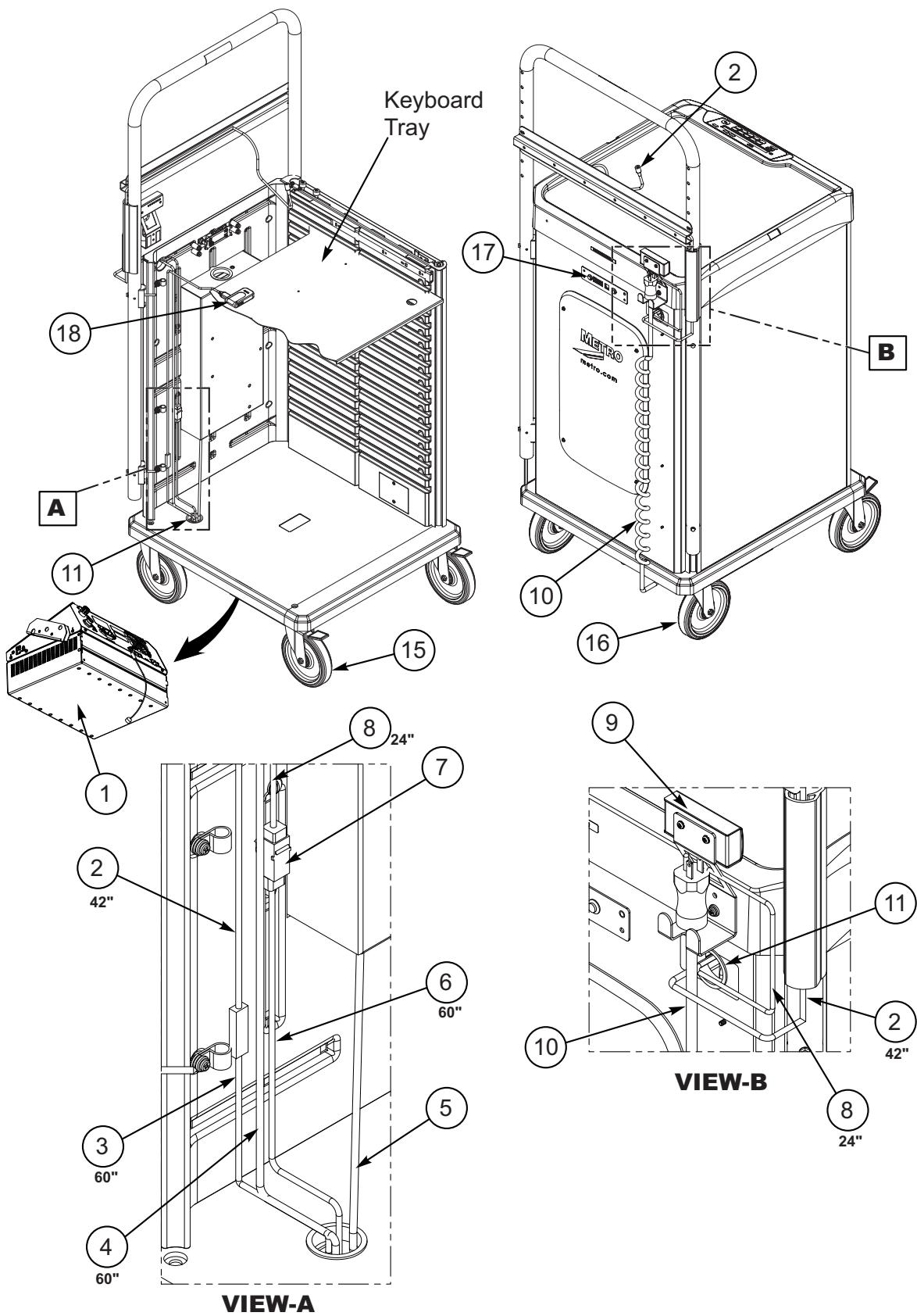


Figure 17: Replacement Parts (Sheet 1 of 2)

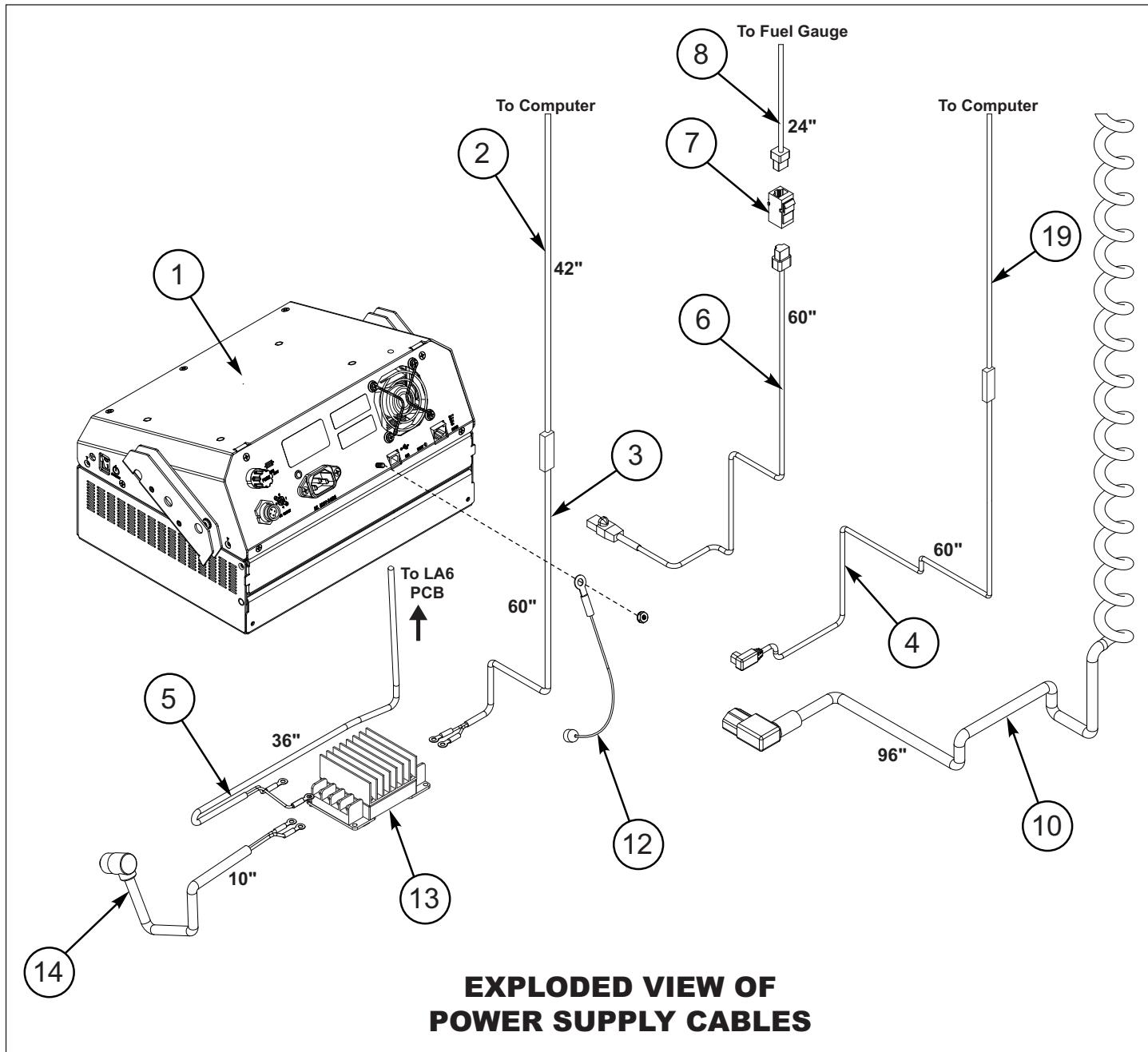
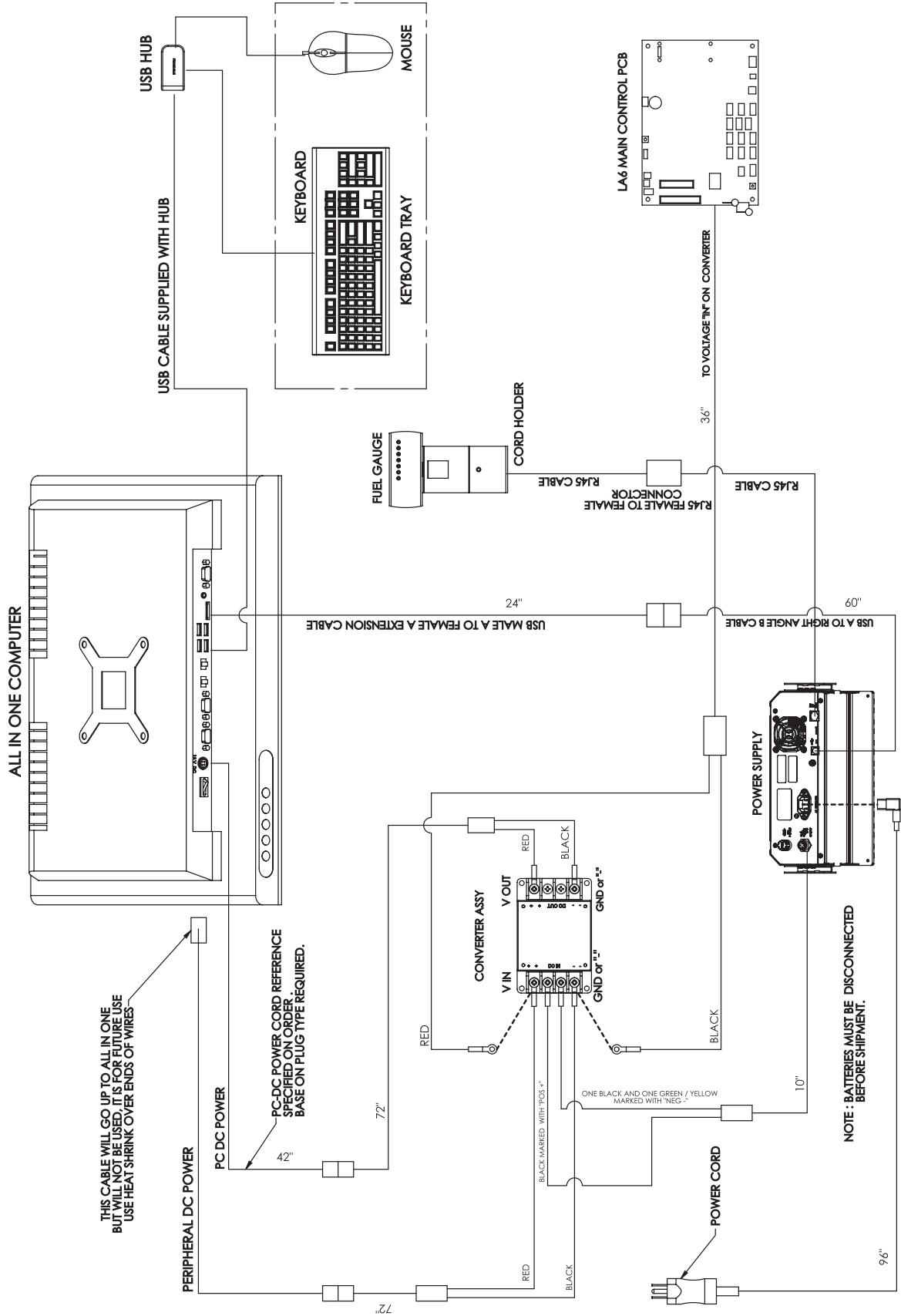


Figure 18: Replacement Parts (Sheet 2 of 2)

WIRING DIAGRAM



BASIC TROUBLESHOOTING

Power Supply Overheating, AC-DC Module / DC-DC Module:

- Air flow in the power supply may be restricted due to cooling fan not working properly, fan blocked, or clogged ventilation slots around the power supply case.
- Turn off computer equipment and then the power supply.
- Check that the fan is not blocked. Check the ventilation slots around the power supply case for dust build-up and clean.
- Turn on the power supply and restart the computer.
- If this problem continues, contact InterMetro Customer Service.

Battery Pack overheating:

- Turn off computer equipment and then the power supply.
- Let cool for 2 hours.
- Turn on the power supply and restart the computer equipment.
- If this problem continues, contact InterMetro Customer Service.

Battery Pack Overheating, Critical:

- System will shut down in 2 minutes.
- Immediately turn off computer equipment and then the power supply.
- Let cool for 2 hours.
- Turn on the power supply and restart the computer equipment.
- If this problem continues, contact InterMetro Customer Service.

No Battery Warning:

- No battery packs are detected in the power supply. Battery packs most likely are not connected before the power supply was placed into service.

NOTE: The battery cells are not connected during shipment due to USDOT AND IATA regulations.

- Turn off computer equipment and then the power supply.
- Make sure battery packs are connected by performing procedure in Section "Connecting the Power Supply Batteries" above.
- Turn on the power supply and restart the computer equipment.
- If this problem continues, contact InterMetro Customer Service.

Power Supply / Battery Pack Low Temperature:

- System temperature below 0 °C (32 °F) has been detected. Ambient temperature is below operating range, temperature sensor has failed or has become disconnected.
- If power supply or its workstation are in an area where the temperature is below 0 °C (32 °F - freezing), move to an area of ambient temperature above 0 °C (32 °F - freezing), otherwise,
- Turn off computer equipment and then the power supply.
- Turn on the power supply and restart the computer equipment.
- If this problem continues, contact InterMetro Customer Service.

Output Fuse Blown:

- The DC output fuse is blown.
- Immediately turn off the power supply.
- Check your workstation cart for a possible short.
- Replace the fuse as specified in "Fuse replacement" below.
- Turn on the power supply and restart the computer equipment.
- If this problem continues, contact InterMetro Customer Service.

Fuse replacement

CAUTION: For continued protection against risk of fire, replace only with the same type and rating of fuse.

- AC input: No fuse
- DC output: F 12 A 32 V (Fast acting 12 A 32 V fuse 1/4 x 1 1/4 in, glass)